



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/462,179	03/10/2000	NICOLANGELO PEDUTO	022701-854	4762
21839 7590 04/30/2009 BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404				
EXAMINER PATTERSON, MARC A				
ART UNIT 1794		PAPER NUMBER		
NOTIFICATION DATE 04/30/2009		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

### Office Action Summary

**Application No.**

09/462,179

**Applicant(s)**

PEDUTO ET AL.

**Examiner**

MARC A. PATTERSON

**Art Unit**

1794

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,5-19 and 21-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-19 and 21-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

**NEW REJECTIONS**

***Claim Rejections – 35 USC § 103(a)***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 - 3, 5 - 11, 19, 21 - 25 and 27 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida et al (U. S. Patent No. 5,164,445) in view of Pipper et al (U.S. Patent No. 5,039,786).

With regard to Claims 1 - 3 and 11, Nishida et al disclose a tubular structure (hose; column 8, line 57) comprising a thermoplastic polyamide (column 2, line 5) and an impact resistance modifier present at a weight concentration of 10% (column 4, lines 44 - 52); the polyamide is a copolymer of caprolactam and mixture of hexamethylene with a diacid having 12 carbons (nylon 6, 12; column 2, line 6); Nishida et al fail to disclose an outermost layer comprising the polyamide and an internal layer comprising the polyamide. However, Nishida et al disclose a tubular structure comprising two layers of the polyamide (multiple layer; column 5, lines 20 - 30) and a polyamide having excellent chemical resistance (column 1, lines 46 - 51). It would therefore be obvious for one of ordinary skill in the art to provide for a hose comprising an outermost layer and internal layer of the polyamide, depending on the desired chemical resistance of the end product. Nishida et al also fail to disclose a ratio of caprolactam and mixture of hexamethylene with a diacid having 12 carbons of 4 to 9 by weight.

Pipper et al teach a copolymer of caprolactam and mixture of hexamethylene with a diacid having 12 carbons of 4 to 9 by weight (column 2, lines 29 - 36) for an article, for the purpose of making the article by injection molding or extrusion (column 4, lines 31 - 35). One of ordinary skill in the art would therefore have recognized the advantage of providing for the copolymer of Pipper et al in Nishida et al, which comprises an article, depending on the desired formation of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a ratio of caprolactam and mixture of hexamethylene with a diacid having 12 carbons of 4 to 9 by weight Nishida et al in order to make the article by injection molding or extrusion as taught by Pipper et al.

With regard to Claims 5 - 9, 21 and 23 - 25, Nishida et al teaches additional layers comprising the composition of the internal and external layers (multiple layer; column 5, lines 20 - 30) and therefore teaches internal intermediate layers and external intermediates layer that are arranged alternately in the transverse direction of the structure and an intermediate layer being formed by the composition forming the internal layers.

With regard to Claims 10 and 22, Nishida et al fail to disclose a polyamide comprising a 6/6-36 copolyamide. However, Nishida et al disclose a polyamide as discussed above. It would therefore be obvious for one of ordinary skill in the art to provide for a 6/6-36 copolyamide, as 6/6-36 copolyamide is a polyamide.

With regard to Claim 19, Nishida et al disclose the use of plasticizer (column 1, lines 19 - 30).

With regard to Claims 27 – 28, Nishida et al fail to disclose an external layer having a thickness of 0.1 mm and that is less than 10% of the total thickness of the structure. However, Nishida et al discloses the selection of the layer structure, therefore thickness, depending on the requirements of use (column 5, lines 20 - 25). It therefore would have been obvious for one of ordinary skill in the art, through routine optimization, to have provided for thicknesses of the layers disclosed by Nishida et al, depending on the requirements of use of the end product.

3. Claims 12 and 14 - 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida et al (U.S. Patent No. 5,164,445) in view of Pipper et al (U.S. Patent No. 5,039,786) and further in view of Princiotta et al (European Patent No. 0646627).

Nishida et al and Pipper et al disclose a multilayer polyamide tube comprising an impact modifier as discussed above. With regard to Claims 12 and 14 - 18, Nishida et al and Pipper et al fail to disclose an impact modifier which has a glass transition temperature below 0 degrees Celsius, and comprises acid as a functional group, and has a modulus of less than 1500 MPa and a melt flow index of between 0.1 and 7 g/10 min measured at 190 degrees Celsius under a load of 2.16 kg and is an ultra low density polyethylene.

Princiotta et al. teach an acid - modified ultra low density polyethylene which has a glass transition temperature below 0 degrees Celsius, and comprises acid as a functional group, and has a modulus of less than 200 MPa and a melt flow index of between 0.1 and 7 g/10 min measured at 190 degrees Celsius under a load of 2.16 kg which is used as an impact modifier of polyamide (page 2, lines 31 - 58) for the purpose of manufacturing a tube usable below a temperature of 40 degrees Celsius (page 2, lines 41 - 46). One of ordinary skill in the art would

therefore have recognized the advantage of providing for the impact modifier of Princiotta et al in Nishida et al and Pipper et al, which is a polyamide, depending on the desired usability at low temperature of the end product as taught by Princiotta et al.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for an acid - modified ultra low density polyethylene which has a glass transition temperature below 0 degrees Celsius, and comprises acid as a functional group, and has a modulus of less than 200 MPa and a melt flow index of between 0.1 and 7 g/10 min measured at 190 degrees Celsius under a load of 2.16 kg in Nishida et al and Pipper et al in order to obtain a tube usable below a temperature of 40 degrees Celsius as taught by Princiotta et al.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida et al (U.S. Patent No. 5,164,445) in view of Pipper et al (U.S. Patent No. 5,039,786) and further in view of VanBuskirk et al (U.S. Patent No. 5,357,030).

Nishida et al and Pipper et al disclose a three - layered tube comprising a polyamide 6 layer as discussed above. Nishida et al and Pipper et al fail to disclose a polyamide 6 layer which comprises a chain extender which is present at a concentration of 0.05% and 5% by weight of the layer.

VanBuskirk et al teach the addition of a chain extender to polyamide 6 for the purpose of improving the physical characteristics of the polyamide 6 (column 1, lines 38 - 59; column 2, lines 58 - 68). One of ordinary skill in the art would therefore have recognized the advantage of providing for the chain extender of VanBuskirk et al in Nishida et al and Pipper et al, which is

comprises polyamide 6, depending on the desired physical characteristics of the end product as taught by VanBuskirk et al.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for the addition of a chain extender to polyamide 6 in Nishida et al and Pipper et al in order to improve the physical characteristics of the polyamide 6 in the making of extruded products as taught by VanBuskirk et al.

5. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over 35 U.S.C. 103(a) as being unpatentable over Nishida et al (U.S. Patent No. 5,164,445) in view of Pipper et al (U.S. Patent No. 5,039,786) and further in view of Kitami et al (U.S. Patent No. 4,881,576).

Nishida et al and Pipper et al discloses a structure for automobile components comprising polyamide as discussed above. Nishida et al and Pipper et al fail to disclose a polyamide having a stress cracking resistance of greater than 500 hours as measured in zinc chloride.

Kitami et al teaches a gasoline hose (therefore an automobile component; column 1, lines 11 - 15) having a stress cracking resistance of greater than 500 hours (30 days; Table 1) as measured in zinc chloride (column 3, lines 30 - 34) for the purpose of obtaining a structure having excellent mechanical strength (column 1, lines 40 - 41). One of ordinary skill in the art would therefore have recognized the advantage of providing for the stress cracking resistance of Kitami et al in Nishida et al and Pipper et al, which comprises a structure for an automobile component, depending on the desired mechanical strength of the end product.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a stress cracking resistance of greater than

500 hours as measured in zinc chloride in Nishida et al and Pipper et al in order to obtain a structure having improved fuel resistance as taught by Kitami et al.

#### ANSWERS TO APPLICANT'S ARGUMENTS

6. Applicant's arguments regarding the rejections of the previous Action have been carefully considered but have not been found to be persuasive for the reasons set forth below.

Applicant argues, on page 9 of the remarks dated January 26, 2009, that no indication has been provided as to why the inclusion of Pipper et al would have resulted in a more desirable end product.

However, as stated on page 2 of the previous Action, one of ordinary skill in the art would therefore have recognized the advantage of providing for the copolymer of Pipper et al in Nishida et al, which comprises an article, depending on the desired formation, by molding, of the end product.

Applicant also argues, on page 10, that Pipper et al fail to disclose the claimed ratio of caprolactam to hexamethylene and diacid because the ratio of '0.5 times to twice the amount' in Pipper et al is with respect to the fresh lactam and extracted lactam.

However, the ratio of '0.5 times to twice the amount' refers only to the method of making the copolymer; Pipper et al also teach, in the cited paragraph, a solution comprising 60 to 90% by weight caprolactam, and 70 to 95% by weight nylon 6 units, therefore caprolactam units, by weight (column 4, lines 31 - 35), therefore a ratio of caprolactam to hexamethylene and diacid of 4 to 9.



7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc A Patterson whose telephone number is 571-272-1497. The examiner can normally be reached on Mon - Fri 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Marc A Patterson/  
Primary Examiner, Art Unit 1794